Predictors of psychopathology in young adults referred to mental health services in childhood or adolescence

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Background For children referred to mental health services future functioning may be hampered.

Aims To examine stability and prediction of behavioural and emotional problems from childhood into adulthood.

Method A referred sample (n=789) aged 4–18 years was followed up after a mean of 10.5 years. Scores derived from the Child Behavior Checklist, Youth Self-Report and Teacher Report Form were related to equivalent scores for young adults from the Young Adult Self-Report and Young Adult Behavior Checklist.

Results Correlations between first contact (T1) and follow-up (T2) scores were 0.12–0.53. Young adult psychopathology was predicted by corresponding T1 problem scores. Social problems and anxious/depressed scores were predictors of general problem behaviour.

Conclusions Problem behaviour of children and adolescents referred to out-patient mental health services is highly predictive of similar problem behaviour at young adulthood. Stability is higher for externalising than for internalising behaviour and for intra-informant than for inter-informant information. Stabilities are similar across gender. To obtain a comprehensive picture of the young adult's functioning, information from related adults may prove valuable.

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Historically, the main interest in the relation between adult and child psychopathology has been retrospective. Growing recognition of the possible continuation of childhood problems into adulthood argues for a (prospective) developmental approach (Achenbach, 1997). Within such an approach, general population samples can be used to assess aetiology, prevalence and natural history of psychopathology. To identify predictors of problem patterns in young adulthood among referred children, and to determine whether they differ from predictors for non-referred children, longitudinal studies of large, diverse clinical samples are needed (Stanger *et al*, 1996). In clinical samples, it is more likely that rarer conditions will be represented and levels of psychopathology and comorbidity will be higher. Each of these factors may influence outcome and thus be of clinical importance concerning prognosis. In this way, children can be identified for whom interventions must be improved. Results can also lead to a more effective planning of prevention strategies.

Literature

To our knowledge, only three such studies exist. In Tübingen (Germany), 1368 children were followed up after eight years, with a 52% response to questionnaires sent by post (Kramer, 1980; Aumiller *et al*, 1981). Problems disappeared in 50%, improved in 31%, remained the same in 12% and worsened in 4%. New problems developed in 25% of the children.

Stanger *et al* (1996) studied a sample from an out-patient clinic in Vermont (USA). They approached 1731 ex-patients by post to obtain follow-up information from various informants. Scorable ratings from at least one informant were obtained from 1103 (63.7%) of the eligible subjects at an average of six years after referral. They reported high quantitative and categorical stability for parent-reported syndromes.

Using a different study design Zeitlin (1986), at the Maudsley Hospital, UK, obtained information from case records on demographic variables, symptoms, clinic attendance and diagnostic categories. He compared 161 adult psychiatric patients who previously attended the children's department (index cases) with children attending the children's department but not attending any adult mental health institute and to adult patients not attending any department of child psychiatry in childhood.

Zeitlin found that formal diagnosis did not help in identifying referred children who were likely to show disturbance in adult life. Remarkably little difference between index cases and other adult cases was found on symptoms or diagnosis, but index cases displayed a raised incidence of personality disorder and an overall incompetence. In this study, the continuity of symptoms from childhood to adult life, irrespective of diagnosis, was one of the strongest findings, and symptom predictability was reported to be far better than diagnostic predictability.

The studies by Aumiller *et al* and Zeitlin have the same disadvantages: a lack of standardised measures of psychopathology, arbitrarily chosen diagnostic categories and limited analytical strategies. The study by Stanger *et al* used identical or comparable questionnaires at both times of assessment, with well-validated empirical syndromes, but only parental information at time of first contact (T1) was used.

Research questions

The present study was designed to investigate, for clinically referred children and adolescents, using different informants: the long-term quantitative stability of empirically derived problem patterns; and the power of different syndromes and demographic variables to predict syndromes across the period from youth into young adulthood.

METHOD

Subjects

Subjects were initially referred to the out-patient clinic of the Sophia Children's Hospital, Department of Child and Adolescent Psychiatry, Rotterdam for psychiatric evaluation and/or treatment between June 1982 and January 1995. This department

is a university clinic, with specialist child psychiatric care.

To be included in this study, subjects had to have the Child Behavior Checklist (CBCL) filled out by a parent or parent surrogate approximately at the time of first contact (T1). The target population consisted of 2926 children and adolescents. Parental informants were 52.9% mothers, 11.2% fathers, 28.5% both parents, 5.8% others (e.g. other relatives, residential care-giver) and 1.6% unknown.

To assess eligibility the T1 case records were evaluated, except 13 that could not be located. Subjects were considered ineligible if one or more of the following applied: died before follow-up (n=19); never seen at the clinic (n=4); first contact after 1 February 1995 (n=6); younger than 4 years or older than 18 years at first contact (n=11); IQ<75 (n=241); referral primarily for problems other than behavioural or emotional (e.g. evaluation of developmental level or intelligence, custody decision) (n=51); no behavioural or emotional problems found at evaluation (n=45); emigrated (n=43); no current address found (n=80). The remaining 2441 subjects (83.4%) were eligible for follow-up. At time of follow-up (T2) three groups were formed, based on the current age of the subject: young adults (19 years and over, n=789); adolescents (12–18 years, n=1288); and children (11 years and younger, n=364). In the present report we will restrict ourselves to the young adult group.

Procedures

Subject forms were sent to the young adults and permission to approach a parent was requested. If no response was received on this initial approach, a reminder was sent. Two weeks later, non-responders were telephoned. Those who still did not respond received a second written reminder. To encourage response a final procedure was started at the end of the project. Informants who had previously consented but had not yet responded were visited at home to collect completed questionnaires or to help informants to complete the questionnaires. If possible, information was obtained instantly; otherwise, an appointment was made.

We obtained scorable rating forms from at least one informant for 544 (68.9%) of the 789 eligible young adult subjects over a mean follow-up period of 10.5 years (s.d.=2.2). Self-ratings were obtained for 506 (64.1%) subjects and parent ratings were obtained for 374 (85.8%) of the 436 parental informants that we were granted permission to approach. The T2 parental informants were 66.1% mothers, 19.9% fathers, 13.2% both parents and 0.8% others.

To evaluate the effect of non-participation, we compared responders and non-responders on gender, age at intake, socio-economic status scored on a nine-point scale (Netherlands Central Bureau of Statistics, 1993) and T1 Internalising, Externalising and Total Problem scores. More females responded than males (73.9% *v.* 65.8%, χ^2=5.78, d.f.=1, P=0.016), and responders scored lower than non-responders on T1 Externalising Behaviour (15.4 *v.* 18.6, s.d.=12.0 *v.* 12.8, t=3.49, d.f.=787, P=0.001) and Total Problems (51.7 *v.* 58.1, s.d.=26.2 *v.* 28.9, t=3.02, d.f.=787, P=0.003).

T1 instruments

The CBCL, Teacher's Report Form (TRF) and Youth Self-Report (YSR) (Achenbach, 1991*a*,*b*,*c*) are standardised reports on children's and adolescents' adaptive functioning and emotional and behavioural problems in the previous six months, as reported by parents or parent surrogates, teachers and adolescents (11–18 years old), respectively. The problem section used in this study consists of 120 questions for the CBCL. On the TRF and YSR, items are adjusted to fit the informant. Items are scored on a three-point scale: 0=not true; 1=somewhat or sometimes true; 2=very true or often true.

The questionnaires are scored on eight syndromes (Withdrawn; Somatic Complaints; Anxious/Depressed; Social Problems; Thought Problems; Attention Problems; Delinquent Behaviour; Aggressive Behaviour) and two broad-band scores (Internalising, consisting of Withdrawn, Somatic Complaints and Anxious/Depressed; and Externalising, consisting of Delinquent and Aggressive Behaviour). A Total Problem score is computed by summing the individual item scores. Good reliability and validity for the Dutch versions of the CBCL, TRF and YSR have been reported (Verhulst *et al*, 1996, 1997*a*,*b*).

T2 instruments

The Young Adult Self-Report (YASR) and Young Adult Behavior Checklist (YABCL) (Achenbach, 1997) are upward extensions of the YSR and CBCL and have the same response format. Both are designed to evaluate emotional and behavioural problems (and adaptive functioning and substance use on the YASR) for ages 18–30 years. The YASR is to be filled out by the young adult subject, whereas the YABCL can be completed by parents, parent surrogates or others who know the subject well (e.g. spouses, partners or friends). Items more appropriate to adult functioning or 'social desirability' items replace items relevant to childhood problems.

The YASR and YABCL are scored on eight syndromes (Anxious/Depressed; Withdrawn; Somatic Complaints; Thought Problems; Attention Problems; Intrusive Behaviour; Delinquent Behaviour; Aggressive Behaviour) and two broad-band scores (Internalising, consisting of Anxious/Depressed and Withdrawn; and Externalising, consisting of Intrusive Behaviour, Delinquent Behaviour and Aggressive Behaviour). A Total Problem score is computed by summing the individual item scores.

Achenbach (1997) has reported good reliability and validity for the American YASR and YABCL. For the Dutch YASR, good reliability and validity have been reported by Ferdinand & Verhulst (1995) and Ferdinand *et al* (1995*a*,*b*) and Wiznitzer *et al* (1992). No published results are available on the reliability and validity of the Dutch YABCL. In this study, internal consistency across scores was 0.81 (average Cronbach's alpha). Alpha values were comparable to those reported by Achenbach (1997), except for Thought Problems, which was smaller.

RESULTS

Stability

Pearson's correlation coefficient (r) between T1 and T2 scores was computed for each instrument and for males and females separately, with the significance level at P<0.05. Differences were tested and mean r values across gender were computed for each score using Fisher's z transformation (Table 1). We used Cohen's criteria (1988) to evaluate the magnitude of correlations: small (r=0.10–0.29), medium (r=0.30–0.49) or large ($\geqslant$0.50). No significant effect of length of follow-up interval on correlations was found in regression analyses for Internalising, Externalising or Total Problem scores.

Broad-band scores

Mean *r* values between T1 CBCL,TRF and YSR Total Problem scores and T2 YABCL Total Problem scores were all medium, both intra-informant (CBCL/YABCL) and inter-informant (YSR/YABCL and TRF/YABCL). The young adult T1–T2 intra-informant correlation (YSR/YASR) was large whereas inter-informant correlations (CBCL/YASR and TRF/YASR) were small. Non-significant correlations were found on TRF/YABCL and TRF/YASR for males and YSR/YABCL for females.

Correlations between T1 CBCL, TRF and YSR Internalising scores and corresponding T2 YABCL and YASR scores were medium intra-informant (CBCL/YABCL and YSR/YASR), and mostly small inter-informant. For Externalising scores, intra-informant correlations were large and most inter-informant correlations were medium.

Correlations between T1 CBCL, TRF and YSR scores and T2 YABCL scores were comparable across informants, whereas the T1–T2 intra-informant YSR/YASR correlations were larger than inter-informant CBCL/YASR and TRF/YASR correlations. All correlations between T1 and T2 Externalising scores were larger than those between T1 and T2 Internalising scores. Correlations were non-significant on YSR/YABCL for females and on YSR/YABCL and TRF/YABCL Internalising and TRF/YASR Internalising and Externalising for males.

Syndrome scores

Correlations were large for YSR/YASR Anxious/Depressed and TRF/YABCL Aggressive Behaviour. Other correlations were mostly medium intra-informant (10 out of 13), and small inter-informant (17 out of 27).

All intra-informant *r* values were significant, except on YSR/YASR Thought Problems for males. Most inter-informant correlations were significant as well. No consistent patterns could be found in non-significant correlations, except on TRF/YASR relations, where for females all predictive *r* values were significant and for males none was significant.

Overall, correlations between T1 CBCL, TRF and YSR syndromes and T2 YABCL syndromes were quite similar across informants, in contrast with the correlations between T1 syndromes and T2 YASR syndromes. In all cases, correlations between YSR syndromes and YASR syndromes were larger than between CBCL or TRF and YASR syndromes.

Table 1 Mean Pearson correlations (*r*) between T1 (CBCL, YSR, TRF) and T2 (YABCL, YASR) psychopathology

T1		T2	
		YABCL	YASR
n	CBCL	372	503
	YSR	85	103
	TRF	114	143
Total Problems	CBCL	0.45	0.26^{S}
	YSR	0.39	0.52^{L}
	TRF	0.45^{F}	$0.17^{S,F}$
Internalising	CBCL	0.33	$0.26^{S,F}$
	YSR	0.25^{S}	0.48
	TRF	0.36	0.15^{S}
Externalising	CBCL	0.51^{L}	0.34
	YSR	0.49^{M}	0.53^{L}
	TRF	0.49^{F}	$0.27^{S,F}$
Withdrawn	CBCL	0.40	0.27^{S}
	YSR	0.31	0.48
	TRF	0.32	0.17^{S}
Somatic Complaints	CBCL	0.34	$0.18^{S,F}$
	YSR	0.26^{S}	0.33
	TRF	0.34	0.29^{S}
Anxious/Depressed	CBCL	0.27^{S}	$0.23^{S,F}$
	YSR	0.35	0.51^{L}
	TRF	0.39^{F}	0.15^{S}
Thought Problems	CBCL	0.26^{S}	0.13^{S}
	YSR	0.14^{S}	$0.25^{S,F}$
	TRF	0.33	0.12^{S}
Attention Problems	CBCL	0.45	$0.23^{S,F}$
	YSR	0.43	0.38
	TRF	0.47^{F}	$0.24^{S,F}$
Delinquent Behaviour	CBCL	0.35^{M}	0.23^{S}
	YSR	$0.26^{S,M}$	0.44
	TRF	0.24^{S}	0.18^{S}
Aggressive Behaviour	CBCL	0.45	0.30
	YSR	0.47^{M}	0.49
	TRF	$0.53^{L,F}$	$0.27^{S,F}$
Mean follow-up	CBCL	10.5 (2.3)	10.4 (2.2)
interval (years, s.d.)	YSR	6.9 (1.4)	7.0 (1.4)
	TRF	8.7 (2.2)	8.7 (2.1)

All effect sizes are medium, except: ^{S} small effect; ^{L} large effect (Cohen, 1988). ^{F} Females have significantly higher correlations; ^{M} males have significantly higher correlations.

Prediction

Using stepwise linear regression analyses, we tested predictive relations between T1 CBCL or YSR scores and T2 YABCL or YASR scores. We included T1 age, gender and length of follow-up interval (in years). The T1 socio-economic status was also included in the analyses, but in none of the analyses did it have a significant contribution. Therefore, it was excluded in the analyses presented here, to make optimal use of the available data. Cohen's (1988) criteria were used to evaluate the percentage variance explained in the analysis: small (1.0–5.9%), medium (5.9–13.8%) or large ($\geqslant$13.8%).

We tested three different sets of regressions: the power of T1 Total Problem scores to predict T2 Total Problem scores; the power of T1 Internalising and Externalising scores in predicting T2 Internalising, Externalising and Total Problem scores (Table 2); and the predictive strength of T1 syndromes toward T2 Internalising, Externalising, Total Problem and syndrome scores (Table 3).

Broad-band scores

In the first set of analyses, T1 Total Problem scores predicted T2 Total Problems, with no additional variance explained by any of the demographic predictors. The percentage explained variance (PEV) was medium inter-informant (6.4 on CBCL/YASR) and large intra-informant (20.7 on CBCL/YABCL; 26.7 on YSR/YASR).

In the second set of analyses, PEV for T1 Internalising and Externalising scores predicting T2 Total Problem scores was medium inter-informant and large intra-informant (Table 2). The T1 Internalising and Externalising scores predicted T2 Total Problems on CBCL/YASR and CBCL/YABCL. For YSR/YASR, T2 Total Problems were best predicted by T1 Internalising scores and gender (males were predicted to score higher than females).

For Internalising scores, PEV was large for YSR/YASR and medium for CBCL/YASR and CBCL/YABCL. For T2 Externalising scores, the predictive power of T1 psychopathology was large intra-informant as well as inter-informant. For all comparisons, PEVs were larger for Externalising than for Internalising scores.

Syndrome scores

In the third set of analyses, PEV in T2 Total Problem scores predicted by T1 syndrome scores was medium inter-informant and large intra-informant (Table 3). T1 internalising as well as externalising scores predicted T2 Total Problems on CBCL/YASR

and CBCL/YABCL. For YSR/YASR, T2 Total Problem scores were best predicted by T1 Anxious/Depressed scores and gender (males were predicted to score higher than females).

For Internalising scores, PEV was large intra-informant (YSR/YASR and CBCL/YABCL) and medium inter-informant (CBCL/YASR). For T2 Externalising scores the predictive power of T1 psychopathology was large intra-informant as well as inter-informant. Percentage explained variances were larger for Externalising than for Internalising scores.

Specific predictive power was found for T1 syndrome scores (i.e. T2 syndromes were largely predicted by their T1 counterparts, except Somatic Complaints and Thought Problems on YSR/YASR). The PEV in T2 syndrome scores was large in intra-informant analyses, except for Somatic Complaints on YSR/YASR and Thought Problems on CBCL/YABCL (both medium). It was medium in all inter-informant analyses except for Thought Problems and Attention Problems (both small effects) and Delinquent Behaviour (large effect).

In most analyses, other variables contributed significantly in the prediction of T2 syndromes in addition to corresponding T1 syndromes. Gender appeared as a predictor in at least two different analyses (CBCL/YASR, CBCL/YABCL or YSR/YASR), showing that for Withdrawn, Intrusive Behaviour and Delinquent Behaviour, higher T2 scores were predicted for males than for females, whereas higher scores were predicted for females than for males on Anxious/Depressed and Somatic Complaints. Predictive power of age at intake and follow-up interval was very limited, explaining only 1.3% and 0.9% of variance in Anxious/Depressed (CBCL/YABCL) and Intrusive Behaviour (CBCL/YABCL), respectively. In the CBCL/YABCL analyses, Anxious/Depressed was a negative predictor for Withdrawn, as was Thought Problems for Delinquent Behaviour, and Withdrawn for Intrusive Behaviour, in each case showing that higher T1 scores predicted lower T2 scores, and vice versa.

Overall, the PEV in T2 broad-band scores predicted from T1 broad-band scores (Total Problems, Internalising and Externalising) was comparable to the PEV in these scores predicted by T1 syndromes. In intra-informant analyses, one T1 syndrome dominated the predictive relations. In the CBCL/YABCL analysis, T1 Social Problems was a strong predictor of T2 Total Problems and most other syndromes. Similarly, in the YSR/YASR analysis T1 self-reported Anxious/Depressed scores were predictive not only for Anxious/Depressed and Internalising scores but also for Somatic Complaints, Aggressive Behaviour and Total Problems.

DISCUSSION

The present study is one of the first to report on standardised longitudinal assessment of a broad range of problems in a clinical sample spanning from childhood into adulthood, using multiple informants at initial and follow-up assessments. Response to follow-up was high (68.9%) in the present study, compared with similar studies by Aumiller *et al* (1981) and Stanger *et al* (1996): 52% and 63.7%, respectively.

Stability of different problem patterns from youth into adulthood was found to be strong over a mean follow-up interval of 10.5 years for males and females, and across different informants. In addition, substantial specificity in the prediction of psychopathology was found (i.e. young adult problem behaviour in most cases was predicted by corresponding problem behaviour in childhood or adolescence). Length of follow-up interval did not influence the stability or prediction of psychopathology consistently. These findings indicate strong continuity of behavioural and emotional problems in clinically referred children and adolescents, and suggest a high likelihood of future problems and poor outcome.

Gender

Stability coefficients did not differ systematically for males *v.* females, suggesting great similarity in the developmental course of problems in males and females. Most gender differences found in predictive correlations stemmed from T1 teacher-reported problems. These always indicated higher stability for females and were found on scores where T1 scores for boys were significantly higher. Similar results were described by Verhulst & van der Ende (1991) who, in a general population sample, found higher stability for girls than boys on teacher-reported Internalising, Externalising and Total Problem scores, despite a generally higher level of problem behaviour in boys. It can be concluded that problem behaviour in girls, as reported by teachers, is relatively stable and deserves extra professional attention.

Gender independently predicted higher scores in at least two T1/T2 relations on Anxious/Depressed and Somatic Complaints scores for females, and on Withdrawn, Intrusive Behaviour and Delinquent Behaviour for males. Combined with the self-reported level of psychopathology being predicted by T1 self-reported Anxious/Depressed scores, these findings suggest that females generally express their worries and fears in emotions or complaints, whereas males more often keep them to themselves or act them out.

Table 2 Significant ($P < 0.05$) T1 predictors (CBCL, YSR) of T2 psychopathology (YASR, YABCL): broad-band scores

	CBCL/YASR			CBCL/YABCL			YSR/YASR		
T2 outcome	Predictor	β	PEV	Predictor	β	PEV	Predictor	β	PEV
Total problems	Internalising	0.18	7.0	Internalising	0.17	18.8	Internalising	0.53	26.4
	Externalising	0.14		Externalising	0.34		Gender[M]	−0.26	
Internalising	Internalising	0.27	7.1	Internalising	0.33	11.2	Internalising	0.48	22.9
Externalising	Externalising	0.35	15.4	Externalising	0.56	31.2	Externalising	0.59	34.5
	Gender[M]	−0.09							

The β and percentage explained variance (PEV) values are derived from regression analyses. Only significant effects are displayed ($P < 0.05$). [M] Young adult males are predicted to score higher than young adult females.

Table 3 Significant ($P < 0.05$) TI predictors (CBCL, YSR) of T2 psychopathology (YASR, YABCL): syndrome scores

	CBCL/YASR			CBCL/YABCL			YSR/YASR		
	Predictor	β	PEV	Predictor	β	PEV	Predictor	β	PEV
Total Problems	Anxious/Depressed	0.16	6.3	Social Problems	0.32	26.6	Anxious/Depressed	0.56	29.9
	Aggressive Behaviour	0.14		Delinquent Behaviour	0.15		Gender^{M}	−0.25	
				Attention Problems	0.14				
				Somatic Complaints	0.10				
Internalising	Anxious/Depressed	0.14	7.0	Withdrawn	0.21	14.7	Anxious/Depressed	0.50	25.4
	Withdrawn	0.11		Social Problems	0.20				
	Somatic Complaints	0.09		Somatic Complaints	0.13				
Externalising	Aggressive Behaviour	0.36	15.4	Aggressive Behaviour	0.31	35.4	Aggressive Behaviour	0.59	35.2
	Gender^{M}	−0.09		Social Problems	0.25				
				Delinquent Behaviour	0.17				
				Withdrawn	−0.10				
Anxious/Depressed	Anxious/Depressed	0.19	7.9	Anxious/Depressed	0.14	15.6	Anxious/Depressed	0.53	27.6
	Somatic Complaints	0.09		Social Problems	0.24				
	Gender^{F}	0.11		Somatic Complaints	0.13				
				Gender^{F}	0.12				
				Age^{O}	0.11				
Withdrawn	Withdrawn	0.27	8.4	Withdrawn	0.47	21.3	Withdrawn	0.46	22.6
	Gender^{M}	−0.14		Anxious/Depressed	−0.21		Gender^{M}	−0.24	
				Social Problems	0.11				
				Gender^{M}	−0.16				
Somatic Complaints	Somatic Complaints	0.18	6.3	Somatic Complaints	0.33	16.2	Anxious/Depressed	0.34	11.5
	Aggressive Behaviour	0.12		Attention Problems	0.12				
	Gender^{F}	0.13		Gender^{F}	0.15				
Thought Problems	Thought Problems	0.13	1.7	Thought Problems	0.14	12.7	Social Problems	0.27	16.7
				Attention Problems	0.16		Aggressive Behaviour	0.22	
				Social Problems	0.13				
Attention Problems	Attention Problems	0.22	4.8	Attention Problems	0.25	27.6	Attention Problems	0.30	18.6
				Social Problems	0.33		Withdrawn	0.21	
Intrusive Behaviour	Aggressive Behaviour	0.30	11.7	Aggressive Behaviour	0.44	39.1	Aggressive Behaviour	0.49	33.0
	Gender^{M}	−0.10		Social Problems	0.27		Gender^{M}	−0.18	
				Withdrawn	−0.22				
				Anxious/Depressed	0.10				
				Follow-up^{S}	−0.10				
Aggressive Behaviour	Aggressive Behaviour	0.29	10.6	Aggressive Behaviour	0.38	26.4	Aggressive Behaviour	0.37	28.8
	Withdrawn	0.09		Social Problems	0.22		Anxious/Depressed	0.27	
				Gender^{F}	0.10				
Delinquent Behaviour	Delinquent Behaviour	0.24	14.4	Delinquent Behaviour	0.38	23.1	Delinquent Behaviour	0.41	31.4
	Gender^{M}	−0.25		Social Problems	0.20		Gender^{M}	−0.27	
				Thought Problems	−0.15				

The β and percentage explained variance (PEV) values are derived from regression analyses. Only significant effects are displayed ($P < 0.05$). ^{F} Young adult females are predicted to score higher than young adult males; ^{M} young adult males are predicted to score higher than young adult females; ^{O} older subjects (at intake) are predicted to score higher; ^{S} subjects with shorter follow-up intervals are predicted to score higher.

Stability

Correlations with T2 parental scores were quite similar for each T1 informant and, as judged by Cohen's criteria, were generally of medium magnitude. Correlations with T2 self-reported scores were largest for self-reported T1 scores, and generally of medium magnitude, but mostly small for T1 parent- and teacher-reported scores. Other data from the same study show that of those scored in the deviant range of CBCL Total Problems at intake, 49.5% were still scored in the deviant range about 10 years later (further details available from J.H.V. upon request). These results reflect not only the stability of the relative position of individual problem scores within the sample but also a strong persistence of deviancy.

Our findings are comparable with the results from Stanger *et al* (1996), Ferdinand

& Verhulst (1995) and Ferdinand *et al* (1995*b*). Stanger *et al* found very similar CBCL/YABCL and CBCL/YASR correlations across a mean follow-up interval of 7.7 years in US samples of referred and matched non-referred subjects. Ferdinand *et al*, in a Dutch general population sample, reported comparable results after a four-year interval on YSR/YASR syndrome scores and after an eight-year interval on CBCL/YASR Internalising, Externalising and Total Problems. These findings suggest that developmental courses of problem behaviour are similar across different samples of referred and non-referred children.

Stability in our young adult sample was usually higher for externalising than internalising scores. This is in agreement with Ollendick & King (1994), who reported that in children externalising behaviour is more persistent than internalising behaviour, but that internalising behaviour is more persistent than once thought.

Prediction of problem scores

Most young adult Internalising, Externalising, Total Problem and syndrome scores were predicted by their T1 counterparts. Many analyses showed other variables to independently predict the additional proportions of variance in T2 syndromes, representing independent pathways to the outcome. For clinicians, these predictors may represent alternative focuses in preventive and therapeutic interventions. For example, to prevent the development of anxiety or depression in girls, interventions could focus on somatic complaints as well as on anxiety or depression.

Inter-informant predictive power (CBCL/YASR) was relatively small compared with intra-informant relations. However, these inter-informant relations are of special interest because they relate to clinical practice. In child and adolescent psychiatry the main informant is the parent, whereas in adult psychiatry the main informant is the young adult subject. The use of multiple informants is not common practice in adult psychiatry. The relatively strong CBCL/YABCL relations and their specific information may indicate an additional value of such informants in young adulthood and may stress the importance of interviewing the partner or a relative. Results indicate a unique contribution of parental information in young adulthood, even though most young adults no longer lived at home.

CLINICAL IMPLICATIONS

- Psychopathology shown by young adults referred to mental health services in childhood and adolescence may largely reflect the specific type of problems already reported at the younger age, and may therefore be best addressed from a developmental perspective.
- With youths referred to psychiatric services, clinicians should bear in mind that in addition to specific syndromes of psychopathology, social problems and problems of anxiety and depression are predictive of many types of young adult psychopathology.
- Clinicians should obtain information from parents as well as youngsters themselves at both childhood/adolescence and young adulthood, because both should be regarded as valuable informants on psychopathology at both times.

LIMITATIONS

- Despite the relatively large response rate, a considerable proportion of former child psychiatric patients was not included in this follow-up, thereby limiting the generalisability of our findings. In particular, youngsters with more severe problems at intake were underrepresented.
- This study is not informative regarding formal psychiatric diagnosis as an outcome in young adulthood.
- This paper does not report on the overall functioning of the young adults, for example in the domains of peer relationships or job performance. However, these outcomes will be reported in a separate paper.

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Our findings suggest different developmental pathways for youths with specific T1 problems. For example, children scored highly by their parents on Aggressive Behaviour who also exhibited Withdrawn behaviour were likely to develop Aggressive Behaviour in young adulthood. In addition, boys with high levels of Aggressive Behaviour were likely to develop Intrusive Behaviour, and girls scoring highly on Aggressive Behaviour and Somatic Complaints were most likely to develop Somatic Complaints in young adulthood.

In our analyses, Social Problems (CBCL/YABCL) and Anxious/Depressed (YSR/YASR) scores were influential in predicting several different T2 syndromes, suggesting a more generic effect on psychopathology. The T1 parent-reported Social Problems was an important independent predictor in many analyses, predicting T2 parent-reported Internalising and Externalising scores as well as Total Problems. This is in agreement with Kramer (1980), who found 'problems in contacts' to be the strongest predictor of parent-reported poor outcome. Similarly, T1 self-reported Anxious/Depressed not only predicted self-reported Anxious/Depressed scores but also Somatic Complaints, Aggressive Behaviour and a large part of Total Problems. This suggests that children reported by their parents to have poor social relations, and adolescents who report worries and fears,

are predicted to have poorer outcome than others and deserve extra attention from clinicians.

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